THE OPTICAL

MAGIC LANTERN

JOURNAL

AND

PHOTOGRAPHIC ENLARGER.

EDITED BY J. HAY TAYLOR.

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Notices.

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NOTICE.

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Notes.

THE business of Messrs. Soper and Stedman, of 147, Strand, W.C., has lately been formed into a Limited Company, and in connection with their lantern slide making department several new appliances have been introduced. The making and colouring of slides for amateurs and others has with them grown to such large proportions that extra hands have been engaged. Some slides received from them will be found commented upon in our "Editorial Table."

* * *

WE recently had the pleasure of meeting Mr. John Watson, of 34, Grainger Street, Newcastle-on-Tyne, when on a visit to London. Mr. Watson, who has fine premises, is one of the rising lantern dealers in his town; he keeps a good stock of lanterns, cameras and slides, and does a large business, and he attaches great importance to a point that is well worthy of imitation, and that is, when one purchases a high-class lantern, endeavour if at all possible to be present to give a helping hand if necessary at the first exhibition of the new outfit. Being a great believer in the automatic and science lantern recently explained in our columns, Mr. Watson has obtained the agency for Newcastle and district. A new set of eighty-two slides "How we got our Bible," which after a lot of trouble and expense he has got together, should meet with a ready sale.

* * *

AT a recent meeting of the Presbytery of Sydney, the Rev. J. Ewen, alluding to the progress of Presbyterian Mission work in a leading suburb of Sydney, said that he was sorry to say that the magic lantern as a church-going magnet was a crowning success, whereas, the ordinary theological menu meant empty pews and a growing unpaid gas bill. As an experiment, the magic lantern was tried for a Sunday evening service, and the church was immediately crowded, "even to the windows." Unfortunately the elders could not see their way to sanction the magic lantern as a permanent institution with the mission.

* * *

THE Rev. W. H. Young, of Athens, Ga., U.S.A., seeing the great necessity for the lantern in church, employs it constantly, and on another page furnishes interesting particulars as to his mode of using the same. In a letter accompanying his article, Mr. Young promises to describe for the benefit of our readers a permanent oxygen apparatus which he has fixed in his church, and also some original accessories which he hopes may be as new and useful in England as they are in America. We await with interest the arrival of the particulars, and will have pleasure in bringing them before our readers without delay.

* * *

A PHOTOGRAPHIC and process exhibition will be opened for two months, commencing 23rd inst., at the City Art Gallery, Leeds. Particulars pertaining to same may be obtained from Mr. Geo. Birkett, Secretary and Curator, City Art Gallery, Leeds.

* * *

THE first exhibition of the Cheltenham Amateur Photographic Society will be held under distinguished patronage, at the Corn Exchange, from October 29th to November 1st. Limelight demonstrations are to take place each afternoon and evening. The secretary is Mr. Philip Thomas of the College Pharmacy, to whom all enquiries should be addressed.

* * *

AT a meeting of the Burton Town Council during a discussion on the so-called dangers of using oxygen compressed in cylinders, the town clerk was instructed to ascertain at what rate, if any, the insurance companies would cover any risks. This was done, and the reply was that insurance companies were prepared to accept the same rate as hitherto, and that no increase of premium was contemplated, and that they were willing to endorse policies.

* * *

MRS. LONGSHORE-POTTS, the lady American doctor, has created quite a stir at Burnley with her temperance lectures. She illustrated by means of the lantern and effective slides, how alcohol had deleterious effects upon the stomach and digestive organs. She explained that under mistaken ideas people took alcohol when they were cold, to warm them; when they were hot, to cool them. People took it at night to make them sleep, and again in the morning to wake them up. The lecture was said to have done more to aid the temperance cause than half a dozen of the ordinary type.

* * *

WE learn that the September issue of the *Artist* (A. Constable & Co., 14, Parliament Street, S.W.) will be mainly devoted to a record and review of the National Competition of Schools of Art, and the Exhibition of the successful drawings now being held at South Kensington.

* * *

PROFESSOR CROOKE thinks that if the electric lights were universal to-day, the candle, if suddenly introduced, would be thought a wonderful invention, as it enables a person to obtain light in its simplest and most notable form, and without the use of cumbrous machinery or the necessity of attaching the lamp to any fixed point by means of wire before it could be lighted.

* * *

MR. A. WEST, of West & Son, Southsea, has started for America to take a series of photographs of the race between Valkyrie and the American yacht; a special tug has been placed at his disposal, so that he should obtain some very fine pictures of this contest.

:o:

How to try the New Gas (Acetylene).

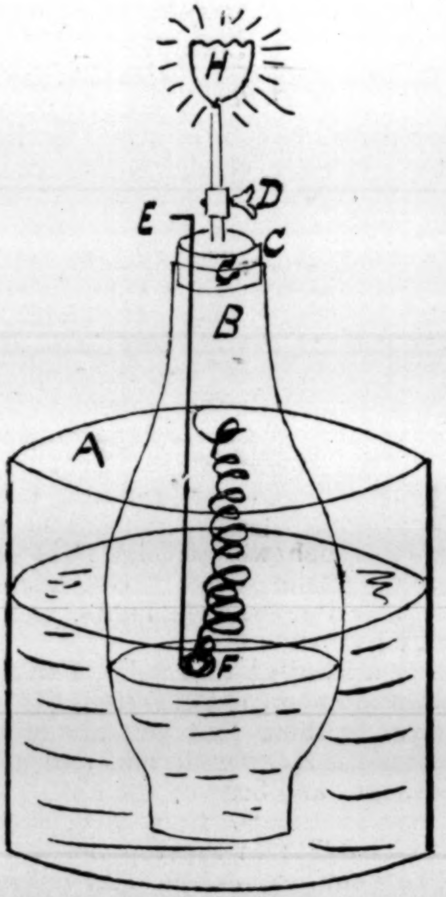
THE question as to the ultimate employment of acetylene gas as a lantern illuminant, is one about which much interest centres. At intervals, since we first mentioned this new gas, we have received enquiries as to where to obtain a small sample of calcium carbide from which to make a little as an experiment. It has been almost a favour to obtain a small piece, and we think that hitherto a certain firm in France and another in New York were the only places where one was at all likely to obtain any.

We have, however, lately received a letter from Messrs. Domeier & Co., 13, St. Mary-at-Hill, London, E.C., stating that they were now prepared to supply two pound samples in sealed tins for two shillings, and they at the same time sent us a supply.

Up to the present, those who wish to make and burn a little of this gas by way of experiment must make their own apparatus in which to generate it, and here is a fine field for the inventor to design a suitable apparatus and burner for use in lanterns; for, given the apparatus and a supply of calcicum carbide, the addition of a little water in suitable proportions is all that is then required to generate the gas.

For the benefit of those wishing to see the lighting qualities of the flame, the annexed sketch will supply particulars of a simple apparatus, the component parts of which will be found in almost every home.

Let (A) represent a circular vessel, glass by preference, so that one may the better see the generating effect. Next, an ordinary paraffin lamp chimney (B) must have a well-fiittng cork (G) provided at the small end (C), a hole being made in same for the reception of a short piece of tubing provided with a tap (D), and a burner. Through the cork a piece of wire (E) with a spoon shape at the end (F) is next arranged. Put a piece of calcium carbide on the spoon (F), set the chimney (B) into the cylinder or jar (A) into which pour some water, and as soon as (E) is adjusted so that the contents of the spoon (F) come in contact with it, acetylene gas will be given off, which may be lighted at (H), the tap (D) controlling the same. The gas in its pure state gives off smoke, but this can be obviated by introducing a proportion of common air. A good burner to try this gas with is the smallest size of Bray's.



Under suitable conditions, the light given by acetylene has been estimated to be from fifteen to twenty times the actinic power of that given by coal gas, and the result of some recent experiments with this gas shows that it can be liquefied at a comparatively low pressure (about 500 lbs.).

Calcium carbide being very anhydrous, the necessity for keeping any stock that may be on hand in tightly sealed cans or stoppered bottles will be evident.

As a rough guide to those about to experiment in making this gas, we would state that two ounces of calcium carbide should give off nearly three-quarters of a foot of acetylene gas, and that the gas is generated very rapidly. It is expected that in quantity, calcium carbide will shortly be supplied at 8s. or 10s. a ton, and when it is remembered that a ton will produce about 12,000 ft. of gas of superior illuminating power, it will be at once evident that acetylene gas has good future prospects.

—:o:—

An American Clerical Lanternist.

By Rev. Wm. H. Young, Ph.D.

(Athens, Ga., U.S.A.)

An interesting article by Mr. Gatesby in the July number of the Optical Magic Lantern Journal, suggests that it might be helpful to have some clerical lanternists tell their experiences. I shall explain very briefly and simply what I deem peculiar or valuable in my own workings; and should be pleased to learn how clergymen similarly situated do in England.

Having a parish that demands all that ingenuity and industry can produce to secure and retain enthusiasm in religious matters, and yet not supplying the "wherewithal," or the "whowithal" to assist me, I am compelled to do many things that could be criticised.

Of course I must make as many of my slides as possible. This I do by borrowing suitable pictures, copying them, and making transparencies by contact printing on dry plates. I am training some young ladies, who already paint well, in the art of colouring slides.

Hymns sung without accompaniment from the screen are very effective here, the people being not afraid of opening their mouths in the dark. I have two successful methods of making them cheaply, the cheapest is to set up a hymn in small clear type, and print it on gelatine. When dry, glue this to a pasteboard mask with a suitable opening. The gelatine will curl in the lantern, but each line can be focussed as they sing it, and the pasteboard holds it securely enough for use.

If a photograph of the words be required, a negative can be avoided by printing the hymn in large type on black paper with white ink. Photograph it directly upon the plate to be used in the lantern. On gelatine one can write the notes suitably with a pen, besides printing the words, and the cost being nearly nothing, I have abandoned photography for all such slides.

Wherever I go, I take a hand-camera and find that almost any scene can be used effectively in some sermon. The magazines furnish occasional subjects to copy. Finely illustrated books give many useful pictures. Photographers often lend me negatives, and help me in various ways. I write to missionaries, or travellers, and in this way accumulate rare views.

All my negatives are catalogued, and all my slides are described in a blank book, thus:—"child, dog and cat," "gondola, ripples, moon," "mother's hand on sleeping boy," "bright angel pointing to stars," etc. When I wish to illustrate a sermon, which is every Sunday night, I read over these descriptions of my slides and note such as seem suggestive. Then I lay these on my desk, take pencil and paper, and note what ideas they suggest to me. Soon these crystallise into a "sermon." Sometimes revision is necessary, and often an entirely new line of thought is evolved, which demands another selection of slides.

When satisfied, I write down the names of slides in their order, interspersing suitable hymns, and then briefly note the ideas to be produced from each slide.

Being compelled to operate my own lantern, I have a little shelf to hold these "sermon notes" where the stray light from the jet will reach them, thus leaving both hands free to operate the instrument.

I find many advantages in being my own operator. Not only am I more in the centre of the audience, who can hear me better, but I can alter, repeat, modify, or exclude slides as seems best at the time; produce sudden effects precisely right; and, best of all, extemporise the entire sermon with respect to views and ideas.

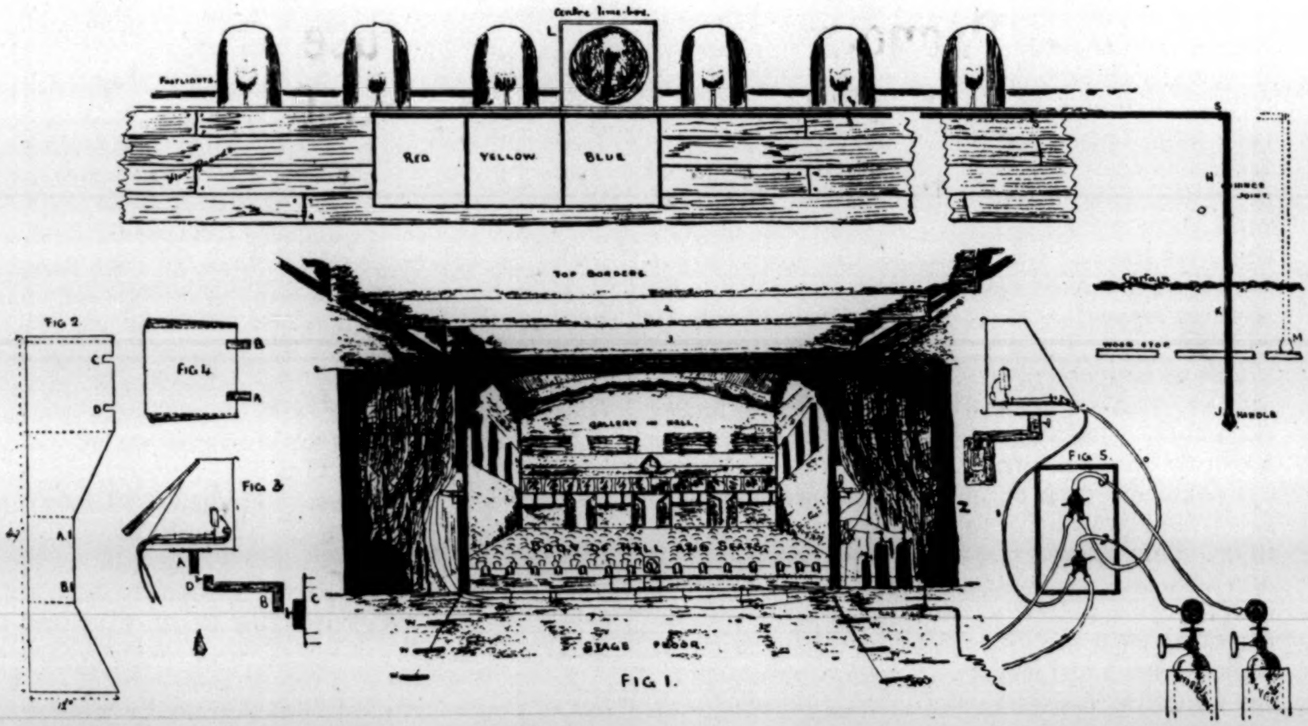
Stage and Tableaux Vivant Lighting.

By a Lanternist.

Having been asked by several of my readers to give some idea as to how a small stage can be easily lighted, suitable for plays, tableaux, etc., I will endeavour to explain, as simply as I can, a way that has been most successfully worked, not only for amateurs, but for operas where thirty persons have been performing, with the result that the lighting and management have been pronounced splendid. I have seen many various methods, and have come to the conclusion that when every hand employed represents expense, one great item is to do as much as possible oneself, and I will endeavour to show how one person can work two side lights and one front light successfully. Of course it is understood that what I am about to state and explain, is not going to answer every purpose, for this reason, nearly every play, etc., has to be studied, and then notes made as to the best positions of where lights should be. I will, however, show that with very little alteration, it can be easily adapted to most purposes.

First of all, what light are we to use. The electric light with a good installation and switch board is, *par excellence*, the light, and some marvellous effects can be produced, but that is at present too expensive for us, and we must deal with the best artificial light for stage effects, that is limelight. Use the ordinary mixed gases for the side lights, and a blow-through jet for the front.

Having arrived at this point, I will now call your attention to my rough sketch, Fig I., where I want you to think that you are standing at the back of the stage with me, and are facing the footlights and body of the hall. We have before us the stage front with curtains on the left and right; at the top borders or sky-cloths as they are called, and on each side (marked w) are the wings. From four to six feet from the floor on either side will be noticed a lime-box, with the connections of the left one shown running under the floor to a switch or adjusting board (x), on the right, where it is there connected to the box above, and also to the supply of gas, viz., cylinders. You will observe that the front of the stage projects forward about 4 feet 6 inches in front of where the drop curtain would be, where at the edge are the foot lights, with reflectors, and a lime-box in the centre, with its connections shown by dotted lines to the right. At (z) I have a large board which is connected with the ordinary gas supply to the hall, and by means of cut-off and bye-pass taps I am able to control the whole supply of lighting promptly, viz., the star pendant lights in the hall, the footlights, the top border lights, and bunch lights, if being used, and I find that it is neccssary to have this arrangement to be successful, for nothing looks worse than to have possibly all your lights going on the stage, and those in the hall full up, because the gasman is a little behind; or all lights down in the hall and also on the stage.



Having now proceeded thus far, I will now show you the lime-boxes, one of which is shown on a larger scale Fig. III. A very good lime-box was explained in the Optical Magic Lantern Journal, Vol. IV., No. 44, which would answer the purpose, although perhaps rather heavy; but I should recommend them to be made of stout tin, see Fig. II., 49 inches long by 12 inches wide, and cut out as shown there, the dotted lines representing the bends, have the edges turned over a piece of stout iron wire to strengthen them, and the shape of box when put together is like a cube with the top back part cut off. Over the opening at back, make a cover, Fig. IV., with sides turned over, with two short pieces riveted on, 1 inch wide and 3 inches long, at (A B), which bend over so as to go into the slots (A B), Fig. II.; they serve to keep in the back light, which is sometimes so inconvenient, on the top and bottom of the front of the boxes. Now fasten on two U-pieces, made of tin, 1 foot long and about a quarter inch wide, so that, when required, a mounted condenser or lens may be attached. Of course, we must have a sliding tray within, and use the short make of mixed gas jet, with two slots cut out at (C D), Fig. II. to allow the rubber pipe for connecting to come through. Make a plate, quarter inch thick, 4 inches by 3 inches, and drill four holes near the corners, and in the centre, drill and tap a three-quarter inch hole, so that a piece of gas pipe or barrel 4 inches long, three-quarter inch in size, can be screwed in. This is riveted on as at A, Fig. III., after which take an inch elbow and screw in 1 foot of pipe, and make an L-piece to go on the other end, B, Fig. III. Having made an iron plate (C), Fig. III. 4 inches by 2 inches, and fastened on a piece of barrel by means of screws through plate into barrel, this can have a hole tapped with thread cut for a small thumb-screw, so as to fasten it rigid; the plate C can be screwed on upright support of stage front.

The box on right hand side of stage can be made in a similar way. I find it convenient to have a thumb-screw in L-piece, to fasten rigid the support to lime-box at D, Fig. III.

You now find your side lime-boxes complete and fixed in a rigid way, can be easily taken down, and the arm being 1 foot long is away from the curtain, so there is no fear of fire; the plate (c), Fig. III. can be left screwed to post as it will not be in the way. A little practice will determine the exact height that these should be placed. I find about 5 feet very handy, but if there are a number of performers 7 or 8 feet would be better, as the shadows cast at the side would be less.

We now come to the switch-board shown at Fig. V. This consists of two Y-taps, with turn-on plug in centre; these are fastened to a board which is three-quarter inch thick, by means of staples, the board being screwed on right upright post, about 4 feet 6 inches high. Having got so far, we will now make our connections, which I think Fig. V. will explain.

Have the cylinders upright in their travelling boxes, with their lids turned over (not shown in sketch) and connect with rubber tubing from oxygen cylinder to top single piece in Y-tap, take another piece of tubing and connect oxygen tap on nearest jet with bottom right hand of adjusting tap, leaving the bottom left-hand piece to be connected with oxygen tap on farthest jet (on left side of stage), the pipes for the hydrogen are then connected up in similar way to their respective taps, etc., which is shown in Fig. V.

Let us suppose now that we have made up all our connections and want to light up to see the effect. First turn off all taps, put lime (the hardest) on each burner, then turn on hydrogen cylinder, and turn on lower tap on switch-board, go to the farthest jet, turn on hydrogen-tap and light. This being done, turn on oxygen cylinder, and turn on top tap at switch-board, and get the best light possible with the jet nearest to you, do the same with the left one and get to burn without any noise or hissing. If we now go back to the adjusting board we shall find that with very little practice we have the two lime-boxes completely under control. It will be advisable to paint this board in two colours, the top half black, and lower half red, so as to avoid any mistake in hurry of working, always use distinct and separate pipes for each gas, and always keep to the same piping for its own gas. With our boxes slightly turned in towards the back of stage and fastened, a splendid light will be obtained, but I have found a little something deficient, and that is a somewhat dulness in exactly the centre of stage, two or three feet from the front. In order to overcome this, I have an ordinary limelight box in centre of footlights, with a blow-through jet, which I find just makes up for that deficiency; to use same have one with a very wide-angle condenser or lens, fasten box in best suitable position to front of stage, and connect up pipes, I have a separate oxygen cylinder, with a small Noakes' screw regulator on the regulator, to which I connect the rubber pipe, and through a hole in the floor to the oxygen tap of blow-through jet. At my feet I have the gas main, where I have put in a tap with bye-pass which supplies, by tubing, the hydrogen-tap of front lime-box. This is easily worked.

First turn on tap at main, then turn on bye-pass tap, also hydrogen-tap at jet and light up; then turn on cylinder and regulate by the valve which is braized on outlet of regulator, and the front light is under control.

We have now been dealing with what is called "open limes," or in other words, "white light," which is most generally used; but when we come to skirt dances or tableaux, this white light would not give the right effects, so we must have some means of conveying or directing a large or small portion of light, also colouring same; for this purpose a lens or condenser must be used, and I have found that a wide angle is the most suitable, of course that would be short focus, as one can always make the ray of light smaller by pulling the jet or lime further away from the condenser. The mounted condenser would slide into the U-grooves at top and bottom of the front of lime-boxes, and on this front I have another set of grooves, so that coloured screens or glasses can be inserted, but for this purpose my U-grooves are at the sides and bottom, and must be made so as to allow the coloured glasses to go down into the grooves without touching the front of condenser. These coloured screens are often wanted in for a considerable time, and holding them would be a most tedious job.

A few words on these screens would not be out of place here. I make mine by cutting a piece of 16 oz. glass to the desired square size, and bind the edges with black tape, about half inch wide, and stick it on firmly with either good starch or shoemaker's paste. Now to colour them I have tried all sorts of dodges with varying success, but I have found that "Dalton's cold liquid lacquers," lately advertised in this Journal, are the most suitable, as they will stand any heat they may be put to, and will stand a lot of rough usage. They can be purchased in almost any shade of colour in small bottles, and are easy to put on. Simply pour on one side of the bound prepared glass a sufficient quantity to flow over the whole of the glass, and then drain off back into bottle, and stand up to dry, which does not take long. Some very beautiful effects can be got by the use of these, and I consider them in every way preferable to the gelatines. In using these coloured screens, I have a boy on the opposite side to put them in place, and first signal to him and show what colour is required, this he finds and it is ready to put in directly he sees me doing so.

With respect to my front light, I have worked out an idea which I have found most useful, and that is to have three squares of coloured glass, let in a tin frame (see top sketch), which is fastened on a piece of half inch gas barrel, which runs through staples screwed into the floor (shown at S S S top sketch). At the right end of this there is an elbow screwed on with another piece of barrel 9 or 10 inches in length, where there is a hinge (shown at H); then have a piece long enough hinged on to this to come under the curtain, say, 3 feet, with a sharp end at handle (J). Now, when this is lying flat on the stage floor, measure from this handle (J) 9 or 10 inches, and nail a piece of wood 1 inch square, 4 feet long on the floor, which I call the wood stop, so that when the handle (K) is pulled to the extreme right the red glass would then be in front of the lime box (L). By means of the handle (K), it can then be slightly lifted; the red glass would raise itself before the lime-box, and the handle (K) can then rest itself at the wood stop (as shown at M), and it can at any time be lowered, and either of the coloured glasses can be shown as wanted; or, if a plain white light is required, by letting the handle (K) lie flat on the floor. By moving the handle 1 foot to the left the yellow glass would come in front of lime-box, or 2 feet for the blue glass. I found it a very good plan to colour the wood stop red, yellow, and blue, so that when the hand (K and J) rests on the stop, it would come in the middle of that colour, and the coloured glass would also come at the same time in front of lime-box. One person can thus do the work which usually takes two or three. When the coloured glasses in the other two boxes have to be changed, a boy can turn the lime and put them in as they are wanted, he watching you for the signal. The front lime could be made to have an easy appliance attached to it to make the lime there turn, but I will not go into that now, as I expect I have already taken up too much space.

I would, however, remind my readers that it is much better to be told how to do anything during the light days than wait possibly till the winter is half over, and then to find an article appear, and say to yourself, this is just what I wanted, but what a pity it did not come before this, when I am half way through the season, and so it is in the photograghic way. All annuals should appear in the spring or summer, not at Christmas. You then have time to read up, and practice or make, especially where lantern or transparency work is described, whereas, when they appear in the winter, they are put on one side, and often forgotten. Perhaps you will think I am getting somewhat from my subject, but I do hope that this article will induce some of my fellow readers who do this sort of work during the winter to give it a trial. There is very little extra wanted than in the ordinary way, and when you once get it together complete, and work it properly, it will soon repay you. You have the whole under control, and I am often told: "What a splendid light you have." From the front the effect is grand.

Far be it from me to say that the above is the only way such can be done. There are many ways, but if you have not a better, or if not as good, try this. I have worked it very successfully, and have saved labour, time, and that the most essential, made more money by using this appliance.

——:o:——

Blue Transparencies on Old or Fogged Plates.*

OLD or fogged plates are soaked until quite clean in a bath made up of equal parts of the following solutions:—

1.	Red prussiate of potash ...	1 ounce
	Water	16 "
2.	Hyposulphite of soda ...	1 "
	Water	16 "

After a thorough washing the plate is immersed for one minute in a solution of:—

Citrate of iron and ammonia	¼ ounce
Water	1 "

and then dried in the dark. After printing by daylight until the shadows are brown, the plate is flowed with a solution of 1 ounce of red prussiate of potash in 4 ounces of water. When development is complete, the plate is washed until the high lights are clear. Such transparencies can be employed for ornamental purposes in a variety of ways.

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* *Anthony's Bulletin.*

Our Visits.

York & Son.

Everyone connected with lanterns and slides of course knows of the firm of York & Son, whose slides are to be found all over the world. Life model slides are a speciality with this firm, and they are executed with great taste. We took a run over to 67, Lancaster Road, Notting Hill, one day lately, to ascertain what the particular secret was that ensured such excellent results, and soon found that it was the employment of skilled hands, years of experience, and patience.

Entering the grounds at the back of the house we were confronted with two large gates, with a pedestal-like erection some distance in front. These gates swung open at right angles, several square posts were set in sockets in the ground, on which an awning was placed, and we found a comfortable and private covered-in way from the pedestal to the stage. A special camera is kept for the purpose, so that it is only necessary to place the camera on the pedestal and it is ready without focussing or other adjustment. The stage is sixteen feet square, and is provided with a dock at the side which is stocked with painted scenes and set-pieces, which are designed and painted specially for each picture by Mr. E. T. Green, late of the Royal Polytechnic, who also acts as stage manager and poses the characters.

On the occasion of our visit the poem "The farmer's fright" was being illustrated, and some of the scenic effects were particularly striking and elaborate. It is needless to say, that the view, as seen from the camera, contrasted greatly with that obtained when one is looking on from the scene dock. From the camera all appeared round and solid, but from the side one could not help smiling at seeing a stout man (the farmer) seated on a scenic horse about half-an-inch in thickness, and built up at the back with a species of shelf, in order to give a little more comfort than could be obtained when a heavy man is sitting on the edge of a scene half an inch in thickness.

Mr. Green having described the story to be illustrated to his models, poses them, and with the necessary explanations he works upon the imagination of the model until the desired effect is obtained, when Mr. York, who is meantime stationed at the camera, makes several exposures of each scene, after which it is dismantled and the next set up.

Mr. York informed us that on one occasion he wanted some loafer models, and as he preferred the real article, went to a neighbouring "pub." and saw just what was wanted. He asked the man if he was doing anything, and was told "*naw.*" "Then," said he, "come along with me and I will give you so-and-so an hour." "What's it to do?" said the man. "Only to stand in a group and be photographed," replied Mr. York. "What," said the loafer, "pay me for having my pictur took? Why people has to pay themselves for getting that done. Look here, who are you getting at?—gawrn," and Mr. York had nothing else to do but to "gawrn." However, he got good models further up the road.

The premises at Lancaster Road are very large, yet each room is well-stocked with lantern slides, photographs, readings and scenic properties. The factory where all slides and prints are made, is situated at Bridgwater, Somerset, the birthplace of Mr. York, senior.

——:o:——

Comparison Lesson.

The following beautiful lesson in comparison is given by Mr. Jas. Leckie:—

"I watched once a series of dissolving views. One especially riveted my attention—a beautiful scene in Italy, where Nature appeared in her loveliest and richest dress. On the verge stood a ruin, which lent to the scene pathos and romance, tenderness and humanness. It was not without a feeling of regret that I observed this scene begin to fade. But while it faded there rose, dim at first, but ever clearer, the outline of another picture—the one keeping pace with the other, the vanishing of the old, the appearing of the new—till at last, when the old had wholly gone, there stood forth in majesty, obscure still, but nevertheless splendid, a picture of the sea, the mountains, and the stars overhead. The eternal had taken the place of the transient. It was a lesson in compensation. The same lesson is read to us every evening. The bright day departs. The curtains of night are drawn. We see no more the features of the accustomed earth; but when earth is hidden heaven begins to unfold its treasures; when the transient scenes of time are shut from our view the watch fires of eternity are lit; when we lose this little world we gain innumerable worlds."

Screens.

By A. M. Hiddon.

Among the many lantern accessories, the one which does not always receive a due amount of attention and consideration is probably the screen. How often does a lecturer, in order to save himself the trouble of carrying with him a bulky screen, trust to the authorities of the lecture room to provide one for him; and how often can partial failure be traced to this arrangement? What avails it, though the apparatus be high-class and the operator skilled, if the screen is only a flimsy, semi-transparent, wrinkled and soiled piece of sheeting? No experience and care in operating can atone for it. It neutralizes the value of the rest of the apparatus, and, strive as one may, it means unsatisfactory results. Perfect results in lantern work are only obtained by the use of apparatus and accessories each perfect and efficient in its own way; failure in one particular, inefficiency in one detail, will only too often mar the whole. If this be a true description of the case, it is obvious that the screen is not to be treated as a minor consideration, for which any make-shift will serve; but rather as a matter of first importance, demanding the utmost care in its selection and use. So great is the value of a really good screen that, although from time to time much has been written about them, it may serve a useful purpose to put before inexperienced lanternists the pro's and con's of the matter.

Practically, it is beyond man's power to produce a screen perfect in all respects. An ideal screen would be absolutoly opaque and yet portable, weighty enough to hang perpendicularly and yet not so heavy as to drag out of shape, always a pure dead-white in colour though the floors and roofs of lecture halls are occasionally dusty, matt-surfaced though washable and ironable. Such conflicting qualities being quite unobtainable in a single screen, it remains to be seen how many of the most important conditions can be obtained by sacrificing the less valuable of them.

The quality of opaqueness is before all others the most important. The whole object of a screen is to reflect back to the eyes of the audience all the rays of light which the lantern projects on to it. With an ordinary linen or calico screen it generally happens that the picture is transmitted right through the material so that it becomes clearly visible on the side which is away from the audience. Nearly the whole of the light which thus appears on the obverse side of the screen is wasted so far as the audience is concerned, and in some cases the efficiency of the lantern is practically halved, for it is showing two pictures at once, one on either side of the screen. Other things being equal, the quality of a screen may be gauged by its transparency; it is good or indifferent according as to whether the picture is faintly indicated or distinctly visible on the wrong side. The value of opacity, and the improved definition it gives, may be easily tested by fastening a square of white cardboard on to the surface of a screen. That portion of the picture which falls on the cardboard will stand out with the utmost brilliancy and detail in contrast to that reflected from the rest of the surface of the screen.

The best colour for the face of a screen is, of course, a dead-white. A slight tinge of yellowness is not a matter of vast importance where limelight is the luminant, but for use with oil-light, which has always more or less of a yellowish tinge, a distinctly bluish hue on the face of the screen is very desirable. The nature of the surface of the screen does not, from the writer's experiments on the matter, seem to demand much attention; but a too-shining a face to the screen is to be avoided, and perhaps there may be some advantage in its being decidedly rough or "matt."

The experiments mentioned above were lately carried out in an attempt to ascertain if it were possible to render an ordinary screen reasonably opaque without interfering with its portability. It is by its portability and the readiness with which it can be packed away into a small compass that the ordinary linen screen has found so much favour, and it seems almost impossible to secure the desired quality of opacity without limiting its usefulness in this latter particular. A small screen was taken and marked off into nine squares, and each one of these divisions was coated with a different composition with the idea of determining the best compound for securing a white and opaque surface which, at the same time, would offer no serious obstacles to portability. The materials used were chiefly whiting, size, ultramarine-blue and water, and these ingredients were mixed in varying quantities, and applied in all sorts of ways. When all the squares were dry, the screen, thus dressed, was rolled and unrolled, folded and packed-up into small compass, exposed to heat and cold, and, in fact, was given the rough handling that a screen may be reasonably expected to receive. One of the most satisfactory surfaces obtained was with a mixture of equal parts of size and whiting, applied hot and carefully smoothed down and well worked into the substance of the screen. So far as opaqueness was concerned it was very successful, for it was as impervious to light as a plaster wall, nor did the dressing crack or peel off in flakes, as was the case with those squares in which the amount of size was lessened, but the creases caused by folding or pressure were practically permanent. It was also found that the pigment applied added considerably to the weight of the screen.

The total result of the experiments practically amounts to this: that by combining size and whiting in suitable proportions, a composition may be made which, although it may give the screen a surface possessing the desirable qualities of opacity and whiteness, will, in more ways than one, detract from its portability—at least, that is the writer's experience. If anyone working on similar lines has had a more successful result, there are doubtless many lanternists who would be glad to have particulars of it.

The newer opaque screens, mounted on rollers, and which, consequently, may be considered non-portable in the larger sizes, need no recommendation. They are by far superior to any form or make of the ordinary screen, and the use of them cannot be too strongly urged upon all who wish to do their slides justice. Just at present there is a feeling of uneasiness with regard to the future of lantern entertainments; from time to time suggestions of various kinds are made with the object of raising the standard of them. One way of improving such entertainments, so far as the pictures themselves are concerned, would be the fitting of all halls and institutions which are habitually or frequently used for lantern work with a permanently fixed opaque rollable screen. Such a screen might cost about fifty shillings, and this expense could be met by making a charge for the use of it. The amateur lanternist, who works for the love of the thing, the professional operator, who makes a business of it, would probably neither of them grudge paying a small amount in return for which the former would obtain better results, and the latter would be relieved of a portion of his already too-cumbrous baggage. Viewed from the standpoint of money alone, the adoption of such a screen should, in the writer's opinion, prove a saving to all parties concerned; while the superiority of the results to be obtained with it might do something to increase the interest taken by the general public in lantern work.

How to Purchase a Lantern.

By the Showman.

No doubt many have noticed, when looking through the advertisement pages of various journals, that a large number of lanterns are offered for sale or exchange, and many more change hands through private channels, the reason in many cases being that the original purchaser has invested in an instrument without properly considering his requirements, to find only too soon that his purchase is of little use to him, and his money practically wasted; so, not having a purse long enough to allow him to begin all over again, he drops lantern work in disgust and goes in for something else. Again, many lanternists know the friend or acquaintance who says to them, "I think of going in for a lantern, what sort had I better buy?" or, "How much ought I to give for a lantern, to get a good one?" and expects a succinct reply, apparently quite unaware that a statement of his requirements is necessary to make an answer to the first question possible, both questions implying a blissful vagueness as to the outfit necessary to an exhibition beyond the lantern itself.

The present article is intended to give the tyro a few hints as to the lines of consideration on which his final decision may best be arrived at. It is assumed to begin with, that the person about to purchase is not obtaining a lantern on the off-chance of using and finding it useful sooner or later, but has at least a well-defined idea of the purpose to which it is to be immediately put, and, with this much known, the thing that may best be considered first is the source of illumination.

Illuminants for lantern purposes may be divided into four classes, oil lamps, coal gas lamps, limelight, and electric light. Of oil lamps those burning mineral oils are most usual, but the old-fashioned kind burning fatty oils may still be obtained second-hand if not new, and is mentioned in case a fatty oil lamp is from any reason an absolute necessity. Coal gas lamps, consisting of either argand or incandescent burners, are convenient for exhibitions on a small scale when coal gas is obtainable, but the next class, limelight, includes some of the best as well as some of the most usual forms of the radiant. Under this head come the spirit jet, the blow-through jet, the injector jet, the mixed jet, and several forms of the saturator, which is now generally combined with a jet of the mixed pattern, though formerly a separate piece of apparatus. The electric light need not be dwelt upon, as, although with the spread of electric lighting its use may become far more general than at present, it is hardly the form of radiant that a tyro would adopt.

As a general rule, it may be said that, except for exhibitions of a very minor character and those at home, limelight in one form or other should be used. This introduces us to the gas difficulty, as for every kind of limelight oxygen gas (the purer the better) is required. This may be purchased compressed in cylinders from which it may be used direct, or made as required from chlorate of potash and stored in either india-rubber bags or a gasholder of metal, in which latter case it will keep for any length of time.

In addition to oxygen, methylated spirit will be required for a spirit jet, coal gas at the pressure of the mains for the blow-through and injector jets, the latter of which must be used with compressed oxygen from a cylinder, coal gas at a pressure equal to that of the oxygen for a mixed jet, and ether or benzoline, as the case may be, for any of the various saturators. If a mixed jet is considered preferable to a saturator, both the expense of compressed coal gas and the trouble of making oxygen may be avoided where coal gas from the mains is available, by using bags, the oxygen bag being filled from a cylinder (care being taken not to burst the bag), and the coal gas bag from the mains in the building. The cylinder can then be used as part of the weight required.

The size of the room in which the lantern is to be used will to a certain extent govern the size of the screen, but for pictures measuring twelve feet and upwards, a mixed jet or some form of saturator had better be used.

The next thing to be considered is the form of lantern to be employed. A single lantern is good enough for showing ordinary views, but the great objection to a single lantern is the impossibility of changing the picture on the screen nicely. Many arrangements more or less complicated have been designed and introduced to obviate or minimise this imperfection, but they all of necessity entail either a momentary darkening of the screen, a dodging in and out of focus of the picture, a movement of the picture on the screen, or a combination of two or more of these defects, anyone of which soon becomes very unpleasant.

One of the best methods for changing slides in a single lantern, perhaps *the* best, as the apparatus is ready to hand, was described by the present writer in an article in the number of this Journal for October, 1894, to which the reader is referred. If a bi-unial lantern is decided on, the owner has two excellent methods of changing his slides, either of which may be used at will; he may either dissolve one into another by working the dissolving tap on the back of the lantern, or, leaving both lanterns lit up, may work the brass curtain plate in front of the condensers and so give the effect of one picture rolling down in front of another and rolling up again in front of a third, and so on. The other advantages of a bi-unial are, that in case of one lantern failing, the exhibition can be finished, using the other alone, and that some of the more simple effects may be used. A tri-unial, or as more frequently styled, a triple lantern, is necessary when those effects are used which necessitate the simultaneous use of two lanterns for their correct interpretation; and as this class of effect is very frequently met with, a triple should be decided upon if effects are to be aimed at, the third lantern rendering dissolving possible after an effect. For the rest, what has been said of a bi-unial applies equally to a triple, and the beginner need not be afraid of finding a triple prove too complicated for anyone of average intelligence.

Saturators generally are not particularly well adapted for use with a triple lantern, and certain forms are even not well suited for use with bi-unials. Spirit jets and oil lamps, too, are confined to single and side-by-side lanterns, except in those oil lanterns arranged to be used in a stand one above another, the lower lantern having a crooked chimney. The body of the lantern next demands consideration, and there is no doubt that a mahogany body is best, as it is cooler and altogether nicer to handle, wears better, looks better, gives a better attachment for the front, and is a stiffer, steadier article than a metal body. Neither is it so noisy, as every tap on a metal body can be distinctly heard, and any attachment it is found necessary to make can be more easily connected to a wooden body, by the amateur, than to a metal one. Other woods than mahogany are sometimes used for the whole or parts of a lantern body, but none are so free from a tendency to warp under heat as well-seasoned mahogany.

There is an idea about that a mahogany body is an expensive item; this is not so. If we compare the prices of similar lanterns with mahogany bodies and without, a considerable difference will be noticed, it is true, but it must be remembered that the mahogany body has a metal body inside, which the metal body has not; allow for this, and the difference will be found to be trifling compared with the gain in appearance, etc. A highly ornamental body is as objectionable as is one which is plain to the verge of ugliness, but it does not follow that a good looking body is badly made, any more than that a plain body is well made, though some writers would have us believe so. There should be doors on both sides of the body, for though they are not necessary for working, they are extremely so for cleaning the inside, or getting both hands in to remove a tight condenser. In the doors on the working side there should be sight holes filled with coloured glass, unless an oil lamp is solely used, in which case the light is viewed some other way. A door at the back is necessary if a petroleum lamp is to be used.

Bi-unials are sometimes made to take in half and work as a pair of lanterns side by side, with oil lamps; and the top lantern of a triple is often made detachable for use with a microscope or otherwise, the lower part then forming a bi-unial, an extra base board and top being generally supplied in either case. As these arrangements involve extra expense and weaken the lantern somewhat, they should not be adopted unless the definite necessity of them is foreseen.

The stage and front tube are best made of brass; a stage which is open all round and fitted with a spring plate is best for general use, unless the apparatus is to be projected, when an open-fronted lantern becomes necessary.

The objective or focussing lens demands much consideration, and the question as to what focus it shall be may well be settled first. Objectives from six to sixteen inches focus are now readily obtainable, and any special focus required can be made to order. Those lanterns which are fitted with one objective only generally have that objective of about six inches focus, a length which, roughly speaking, gives a picture, the diameter of which is equal to half the distance between the lantern and the screen. As oil lamps are now constructed we are practically limited to that particular focus when that form of radiant is employed, so that if we have decided to use an oil lamp, six inches must be the focus of our objective. Another objection to the use of an oil lamp is that it prevents the lantern being tilted to any extent, so that to get the picture sufficiently high on the screen, the lantern has to be raised to an awkward height above the floor. Six inches is a focal length which is fairly suitable for use in private and in small rooms before small audiences, but in larger halls it necessitates the lantern being placed inconveniently near the front. Now with an objective of twelve inches focus we can place the lantern twice as far away from the screen to get the same size picture as we had before with six inches focus, and an objective with a focus of something like twelve inches is what is generally found most suitable with any form of limelight. This question of focus, however, is one which everyone can easily determine for himself. If the room or rooms in which the lantern is to be used are known, they can, if within reach, be easily visited, the most suitable position for the lantern and size of screen determined for each case, the required focus calculated, and a result arrived at accordingly. For instance, suppose three rooms are to be used, and we find that in the first two a fourteen feet screen will do nicely, while in the third a twelve feet screen is the largest that can well be used, and, although not bound to a few feet either way, the most convenient situations for the lantern are at distances of 50ft., 40ft., and 47ft., respectively; decide upon a twelve feet screen and make that suffice for all three rooms; then decide the focus of the objective by referring to the Ready Reference Table which may be obtained from the office of the OPTICAL MAGIC LANTERN JOURNAL for the sum of 2½d., or, better still, calculate the required focus for yourself as follows:—Taking the diameter of the slide as three inches, multiply this by the distance between the lantern and screen in feet, then divide by the diameter of the picture in feet, and the result will be the focus of the objective in inches. Thus, in the first case, $3 \times 50 = 150$, and $150 \div 12 = 12\frac{6}{12}$, so that $12\frac{1}{2}$ inches is the focus of the objective in that case; following the same rule with the other two cases, we get results of 10 ins. and $11\frac{3}{4}$ ins. respectively, so let the focus of your objective be 12 inches, and place the lantern a trifle nearer the screen in the first case, and a trifle further away in each of the other two. If the exhibition rooms are not known beforehand, the focus required may be deduced from rooms of a similar nature which are, but in any case a lens of ten or twelve inches focus will be found a safe investment. Many lanterns are offered with interchangeable objectives of varying foci, which both add to the cost of the lantern and the weight of the outfit, so that, unless absolutely necessary, they may very well be omitted.

(To be continued.)

Substitute for Limes for Oxy-hydrogen Light.

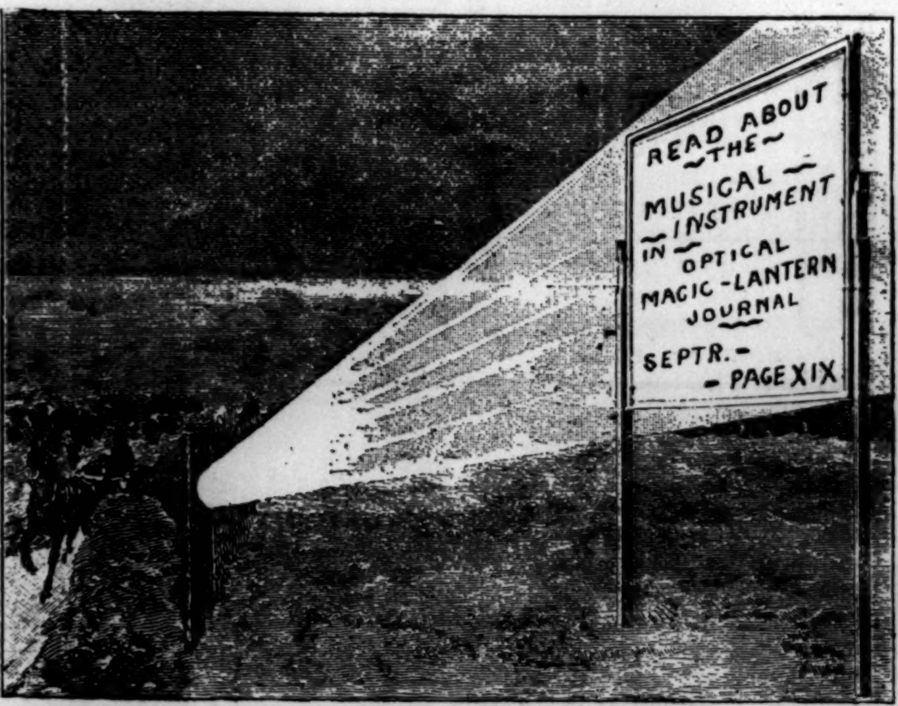
It is claimed by a writer in *Ph. Archiv.* that the following composition is a great improvement on limes—as commonly used in conjunction with lantern work—as it is lasting, and gives a whiter light with less oxygen :—

"Rub down in a mortar some pure magnesium powder with distilled water until it is of the consistency of a stiff paste that is easily moulded. Fill a glass tube, a few centimeters long, with this paste, the diameter of the tube being a little greater than the beads are to be. Push the magnesium paste firmly in the tube, and close with a cork. As soon as the cylinder has become somewhat firm, push it out of the glass with a pointed rod, cut it into pieces of a suitable length with a knife, and fasten a short platinum wire to each piece. This is to hold the magnesium bead over the centre of the burner. The beads are then rubbed round by the fingers, and dry for two or three hours over a water bath, when they become very soft. They are next brought into a limelight burner, and slowly warmed in the flame, at first without oxygen. This is slowly turned on until the bead is brought to the highest possible temperature, and gives out a blinding white light. The heat causes the bead to contract considerably, and it becomes so hard that it is difficult to scratch it with a file. As it is unchanged by the atmosphere, it may be left on the burner, and is always ready for use. Such a bead, of four to six millimeters in diameter, was used in the Pasteur Institute as a source of light for more than fifty hours. This method possesses many advantages over the lime cylinder. The light is much brighter with a given consumption of gas, and owing to its small size, less oxygen is required to bring it to incandescence. It gives out little heat, and its white light is very actinic, so that objectives of the greatest aperture (microscopic) can be used. On account of its small size, the centering of the light and the illumination of the image are also more easily arranged."

New Apparatus.

AUTOMATIC DAY AND NIGHT ADVERTISER.

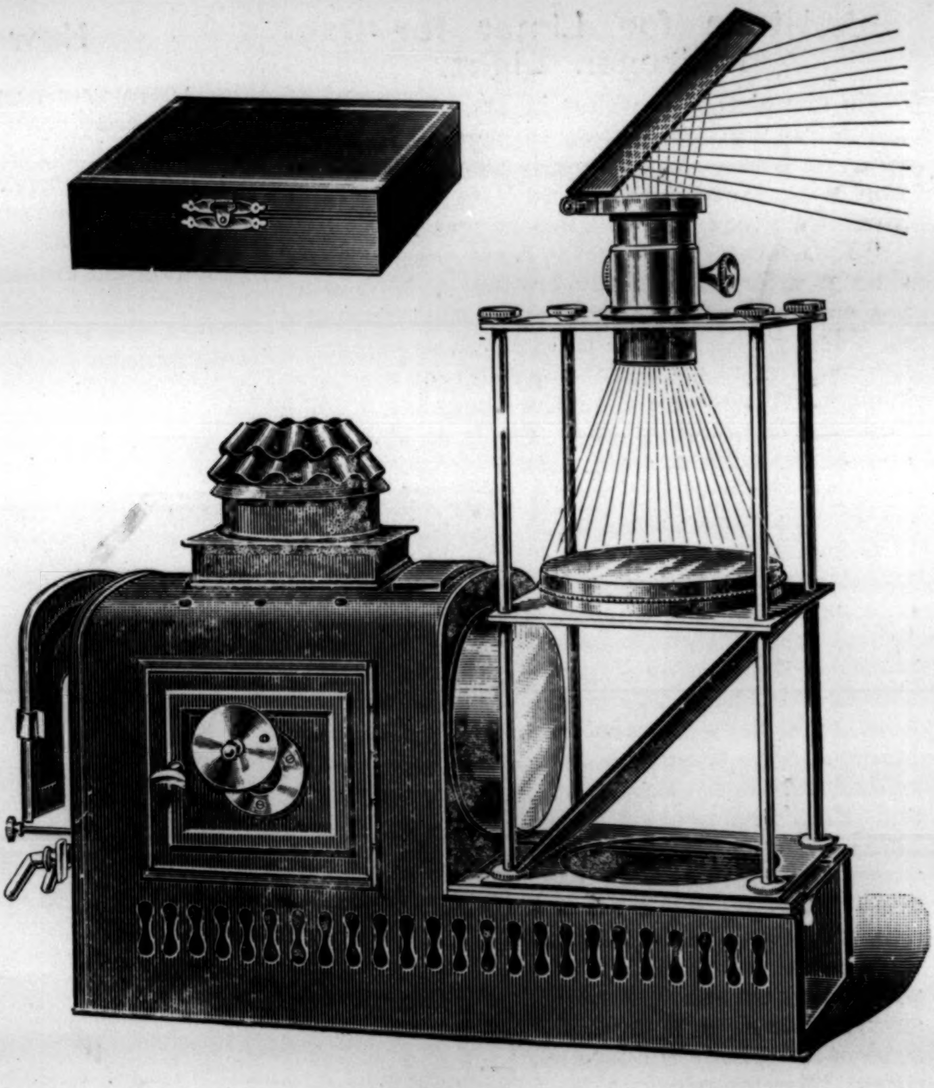
Messrs. Hawkins & Co., Flixton, have introduced the above. For night use an automatic lantern with oxy-hydrogen limelight is employed, and each advertisement in the form of a slide is caused to remain on the board-screen for the space of one minute. For day use and on the reverse side of the board-screen, iron plates 2 feet square are so placed that they automatically change once every half hour.



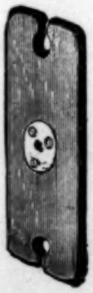
Automatic Day and Night Advertiser.

VERTICAL ATTACHMENT.

A patent has lately been applied for by Mr. Alfred Wrench for a portable vertical attachment, which can be packed up in a box measuring 6 by 7 by 3 inches. It is a most ingenious arrangement, and can be set up in a very short space of time. The uprights are fitted with screw joints, and the screws and nuts relating to the various stages being of different sizes, it is a matter of impossibility to put it together other than the correct way. The illustration shows it fitted to a popular style of lantern. The well-known wholesale firm over which Mr. Wrench presides is now, when desired, supplying all parts of lanterns, which have hitherto been made of brass, in aluminium, which is a great improvement in many ways. The metal body of the lantern shown on p. 146 when constructed of aluminium weighs without fittings something like 4 or 5 ounces. Lenses are being mounted by the hundred, and we are informed that in a short time it will be considered old-fashioned to have a lantern lens mounted in brass.



STEREO ATTACHMENT FOR CAMERA STAND.

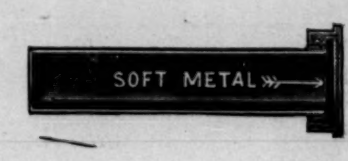


Messrs. Butcher & Son have introduced a simple attachment enabling one to take stereoscopic views of still life with a single camera. The attachment shown in the sketch is attached to the tripod, and a view taken whilst the camera is fastened at either end. In pointing the camera after changing its position, care must be taken that it embraces the same view as that taken from the other end of the head attachment.

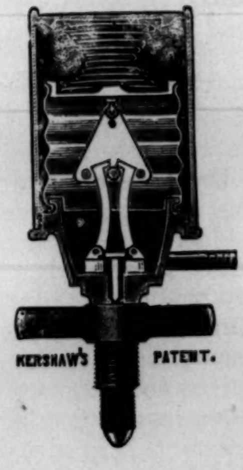
"ARCADIAN" LIMES.

New brands of hard limes would seem to be the present fashion in one of the departments pertaining to lanterns. The new lime termed "Arcadian," which has been issued by "Leviathan, London," is certainly very hard, and very good.

LIME TUBE.



Mr. Kershaw, seeing the necessity for a lime-box or tube in which limes may be kept air-tight without the intervention of a leather washer, now lines the cap with soft lead, a plan which answers the purpose well.



REGULATOR.

A new regulator for compressed gas is upon the market, a patent for which has been applied for by Mr. A. Kershaw. To outward appearance it is the facsimile of the well-known Beard pattern, and whereas the valve of the latter is controlled by a lazy-tongs, the action of the former will be seen from the sectional sketch.

[At the time of going to press an electro of Askew's patent lantern, manufactured by Messrs. Philip and Son, was not quite ready, hence particulars are kept over till our next. —Ed.]

Patent Intelligence.

The following list, relating to current Patent Applications, is compiled expressly for "The Optical Magic Lantern Journal" by a registered Patent Agent. For further information apply to The Patent Department, "Optical Magic Lantern Journal," 56, Chancery Lane, London, W.C.

No.	Recent Patent Applications.
11892.	19th June, 1895. C. M. Hepworth. A hand-fed lamp or regulator for the electric arc light for projection purposes.
11966.	19th June, 1895. A. B. Willway. Improved construction and arrangement of container for ether saturation of oxygen for limelight.
12245.	24th June, 1895. A. Sweetree. Improvements in apparatus for the production of oxygen gas.
12528.	28th June, 1895. C. Linde. Process and apparatus for separating oxygen from atmospheric air.
13076.	6th July, 1895. C. W. Locke Improvements in and relating to oxy-hydrogen mixed gas jets and jet slides.
13831.	19th July, 1895. T. B. Jones. Improvements in and connected with the manufacture of oxygen, and rich oxygen compounds, etc.
13959.	22nd July, 1895. H. L. A. Lapointe. Improvements in and connected with the manufacture of oxygen.
14663.	2nd August, 1895. W. Broughton. Improvements in stands for supporting cameras, theodoliters, levels, magic lanterns, and other analogous purposes, in frames for screens for use with magic lanterns and other analogous frames.

Recently-Printed Specifications.

Copies of the following specifications may be obtained by remitting 1/- for each specification to The Patent Department, "Optical Magic Lantern Journal," 56, Chancery Lane, London, W.C.

6796 of 1895.	Agnero. Graphoscope.
14889 of 1894.	Barton. Science lantern.
9496 of 1895.	Newcomb. Flash light mechanism.
10712 of 1895.	Brier. Oxy-hydrogen multiple jet apparatus.
17077 of 1894.	Dando and Gwynne. Lenses and electric lamps.

—:o—

Editorial Table.

Slides.—Soper & Stedman, Limited, of 147, Strand, have forwarded us a few samples of slides made by them. These have been, the last three weeks, lying on our desk, and have excited universal admiration. The tone and brilliancy are all that could be desired, and this, together with the softness of the shadows, places them in the foremost rank. We learn that this firm intend shortly introducing a set of slides of prison life from negatives of their own taking.

Blue Book of American Amateur Photography (1895).—This useful and interesting handbook is compiled by Mr. Walter Sprange, Beach Bluff, Mass., U.S.A. The main feature of the book is to give the names and addresses of Members of Photographic Societies, but in addition to this, it contains particulars respecting copyright laws, various developing and other formulæ, tabulated matter, and also some good half-tone illustrations. The prices in paper covers and cloth are respectively, 75 cents and one dollar, post paid.

—:o:—

Correspondence.

MR. PRINGLE'S CHALLENGE *re* JETS.

To the Editor.

Sir,—Although I am a tyro at lantern work, I venture to think that I am an enthusiastic one, and my aim is to get the best results with the best apparatus.

Possibly Mr. Pringle may consider me bumptious, but with his leave I am open to compete against his mixed jet, as originally suggested by him, on the following conditions:—

1. That cylinders be used charged by Brin's Oxygen Company.
2. That the quantity of gas used to obtain the best results be regarded as of secondary importance.
3. That the name of the maker or makers of our respective jets be not disclosed until after the trial.

I am quite willing to accept any modifications that Mr. Pringle may wish to make to the above, but I think that the first trial should be on the lines I have indicated.

Yours truly,
R. CLAY.

Park Lodge,
Muswell Hill, N.

LANTERN SLIDE EXCHANGE.

To the Editor.

Sir,—I am forming a club for the above purpose, and I invite applications for membership to complete the intended number of twenty. Each member is to pay an annual subscription of 3s. 6d., and to contribute not more than four slides to each circulation, of which there are to be four in the year. I need hardly say that the slides must be really good ones. A book will accompany them on their round, so that members may enter the numbers of the slides they are willing to take in exchange for copies of any of their own. Prizes of 5s. and 2s. 6d. will be awarded for the best and second best slide in each collection. Rules and full particulars on application to

Yours truly,
Rev. F. PARTRIDGE.

St. Clether Vicarage,
Egloskerry, R.S.O., Cornwall.
August 12th, 1895.

[A society of this nature was suggested in these columns last year and was formed by our readers. When last we saw the lists of slides they consisted of a good number. If new names are sent to the Hon. Sec., Mr. A. M. Hidden, 2, Thames Place, Putney, doubtless he will be glad to add them. No subscription is charged, the only outlay being the postage stamp to forward the book to the next name on the list.—Ed.]

COPYRIGHT PROTECTION.

To the Editor.

Sir,—We should feel obliged if you would make known in your valuable paper that at a meeting of the committee of the Photographers' Copyright Union, it was decided to invite the adhesion of amateurs to the Union. The committee have heard that there is a decided wish on the part of many to join. Undoubtedly the interests of amateurs in copyrights need protection as much as the professionals. Now that reproduction of photographs can be so cheaply and successfully made by the various processes, the copyright of clever photographic studies have an undoubted money value. The annual subscription is 10s. 6d., and membership gives the right to the advice and assistance of the solicitors of the Union without any charge. Applications for membership should be addressed, The Secretary, Photographic Copyright Union, London Chamber of Commerce, Eastcheap, E.C.

Yours faithfully,
HENRY GOWER,
Secretary for the Committee,
Photographic Copyright Union.
London Chamber of Commerce,
Botolph House, Eastcheap, E.C.

BAGS *V.* CYLINDERS.

To the Editor.

SIR,—I have read the letter in the August number under the above heading, and, as an amateur, I must, with all due deference, take exception to the latter part of your correspondent's letter.

That "screen results are a secondary consideration" to most amateurs, is, I venture to think, tantamount to an insult to all amateurs who go in for lantern work at all seriously, and certainly two friends of mine have given ample proof to the contrary, and in my own humble way I always endeavour to get the best that can be got, although I admit that ease in obtaining a good light is a very important and real matter, and must be obtainable if the best results are to be had on the screen. Besides which, bags will not give sufficient pressure to work the *best* class of mixed jets to their full power, let alone the question of the bulk of the bags for transit purposes.

Yours truly,
AN ENTHUSIASTIC AMATEUR.

BAGS *v.* CYLINDERS.

To the Editor.

SIR,—"The writer of the article" asks in last Journal for instances of a retort bursting from over-pressure caused by the delivery pipe choking up. Londoners, at least, may know of one case where the head of a firm (no good would be done by mentioning names, as the firm is still in existence, but it is sent for editor's approval) was killed through this cause whilst engaged in making oxygen.

Yours truly,
A READER.

[In the case alluded to the retort fell from the fire on to the floor. This caused the pipe to choke, and the retort was either bottom up, or on its side when it exploded.—ED.]

——:o:——

Notes and Queries.

Paj.—See a letter on another page. You could also join the Lantern Society as a country member. The subscription is 10s. per annum. Write to the hon. secretary, Mr. W. Bashall, 21, Holland Villas-road, London, W.

Jet.—Owing to some prior patent, Mr. Hughes has withdrawn the jet from the market at present. We can give you no further information.

J. C. White.—The storage principle will answer. A stamped envelope addressed to the writer, and sent to our office, will be forwarded, but we cannot publish the address without permission.

Bis.—Some years ago Mr. Chadwick brought out a small gasometer. If you put yourself in communication with him you may perhaps be able to obtain one. We use one in connection with experimental work, and find it particularly useful. A few evenings ago we kept a supply of acetylene gas in it for use, and by blowing air into it, we were thus able to obtain the right mixture of acetylene and air to burn without smoke.

Mixed Jet writes:—"I should be glad if you would give me some information as to using the mixed jet? I am quite aware of the dangerous compound which the two gases form when they combine in the mixing chamber, but do not quite understand the principle upon which the jet is worked, in order to prevent firing back. Do you consider the jet dangerous to work? and do you think that the wire gauze and metal discs which are used in some jets a preventative for the above? Would it be safe in using the two gases if one of the cylinders was only half full, providing, of course, that regulators are used?" *Ans.*—Allow sufficient hydrogen to pass through the nipple of jet to get a good sized flame when a light is applied, and when this has been done turn on the oxygen tap. The size of the flame will diminish, but it will increase in heat, thus causing the lime upon which it plays to become incandescent. The only chance of firing back is when either the pressure is taken off (say) the gas bag, or if the size of nipple is abnormally large. The larger the size of nipple the greater the pressure required. There is no danger, and you will find that a few minutes' trial will enable you to know all about it. The metal discs and wire gauze are supposed to be for the better mixing of the two gases before they reach the nipple of the jet. It would be quite safe to use one cylinder full and the other only half so. If that containing the oxygen got exhausted the hydrogen would burn with a larger flame, and the incandescence of the lime would disappear, whereas if the hydrogen one happened to give out the flame would go out, and pure oxygen would be playing on the lime, and this would give no light whatever. Supposing you suddenly turned off both the gases at their respective cylinders you would thus take off the pressure, and might give a little snap, but nothing to be alarmed about. When putting out the light turn off the oxygen tap of jet, and then that controlling the hydrogen. After this has been done you can turn it off at the cylinders at your leisure.

H.N.—If by "shifting" the combination you mean placing the front one in the place of the back, it will answer.

P.R.—To all three questions the answer is "yes."

Slides.—(1) Some time ago he moved in the same road. (2) Yes. (3) No.

Zoddle.—Unless your lantern is different from others, you can unscrew the nuts holding the front, adjust those underneath, and secure again in place by tightening the first.